United States Patent [19]

Gillingwater

[11] **4,155,165**

[45] **May 22, 1979**

[54] **PICTURE MAT MARKING INSTRUMENT**

[76] Inventor: **Abel R. Gillingwater,** Rte. 3, Box 14A, Depauw, Ind. 47115

[21] Appl. No.: **936,874**

[22] Filed: **Aug. 25, 1978**

[51] **Int. Cl.**[2] **B43L 7/00**

[52] **U.S. Cl.** **33/104;** 33/112; 33/96

[58] **Field of Search** ..... 33/75 R, 112, 113, 104, 33/95, 96, 94, 97

[56] **References Cited**

U.S. PATENT DOCUMENTS

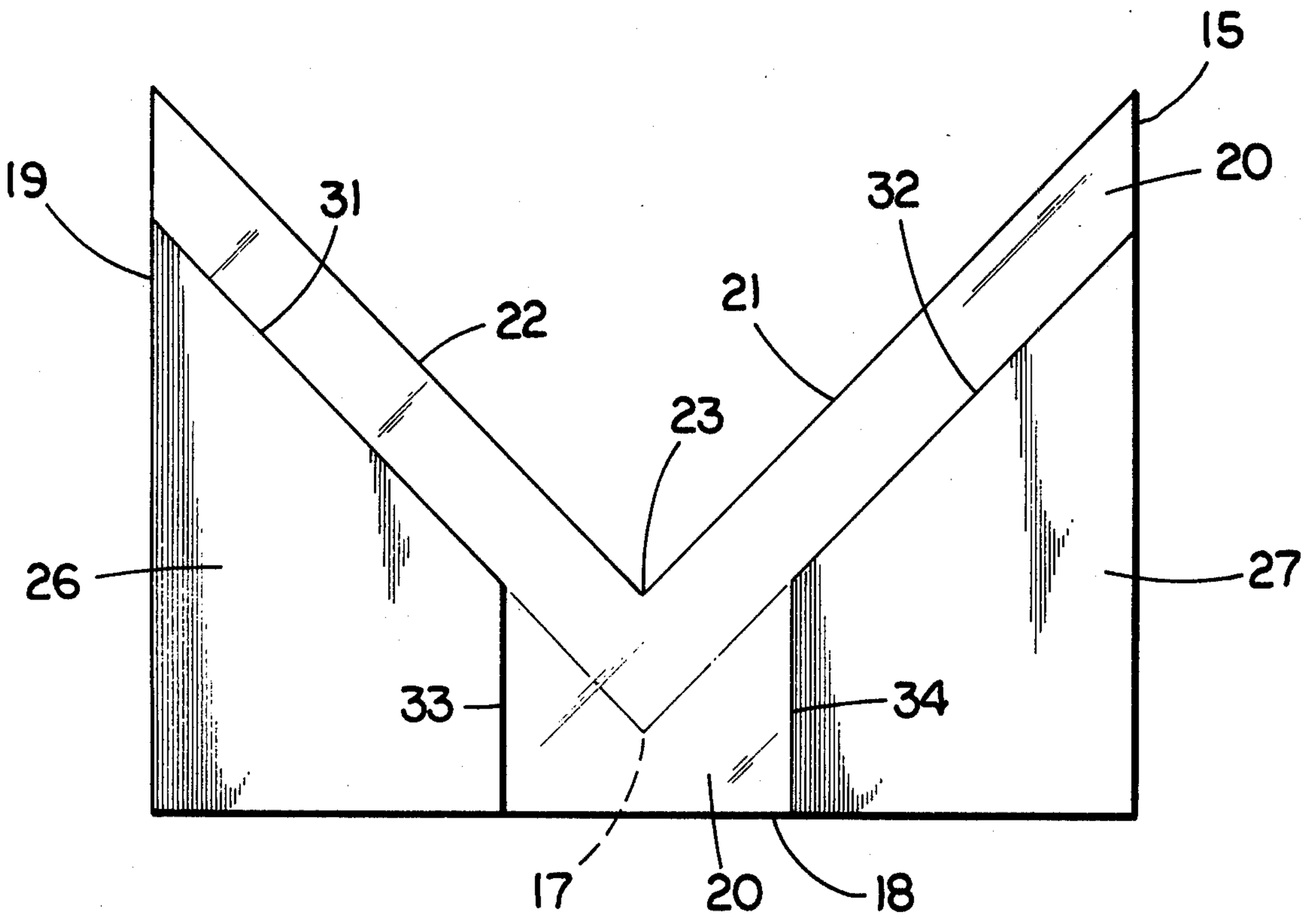
313,197	3/1885	Gaylord	33/112
513,665	1/1894	Barberie	33/191 X
778,521	12/1904	Wheat	33/42
1,584,507	11/1926	Bulling	33/104
1,845,449	2/1932	Smith	33/104
2,080,620	5/1937	Martin	33/104
2,247,362	7/1941	Dibble	33/104
2,610,407	9/1952	McQuaid	33/104
3,156,984	11/1964	Palmer	33/174 G X
3,381,382	5/1968	Kemp	33/104
3,687,770	8/1972	Chase	156/221
4,027,396	6/1977	Pierce	33/112 X

Primary Examiner—Harry N. Haroian
Attorney, Agent, or Firm—Woodard, Weikart, Emhardt & Naughton

[57] **ABSTRACT**

An instrument for marking, in preparation for subsequent cutting, of picture mat stock utilized in producing octagonal single or dual matting of pictures, comprising a base plate having a right angle indentation in one of its margins for accommodating the right angle corner of unmarked mat stock and a rectilinear base margin for accommodating the adjustably positionable transverse member of a conventional framer's T-square, a mid-plate secured to and overlying the base plate having coincident margins therewith but whose right angle indentation is parallel to but spaced from that of the base plate and two top plates secured to the mid plate having inclined margins coincident with the right angle indentation of the base plate, the top plates being laterally truncated to form a channel over said mid-plate to freely receive the shank portion of the framer's T-square.

3 Claims, 9 Drawing Figures



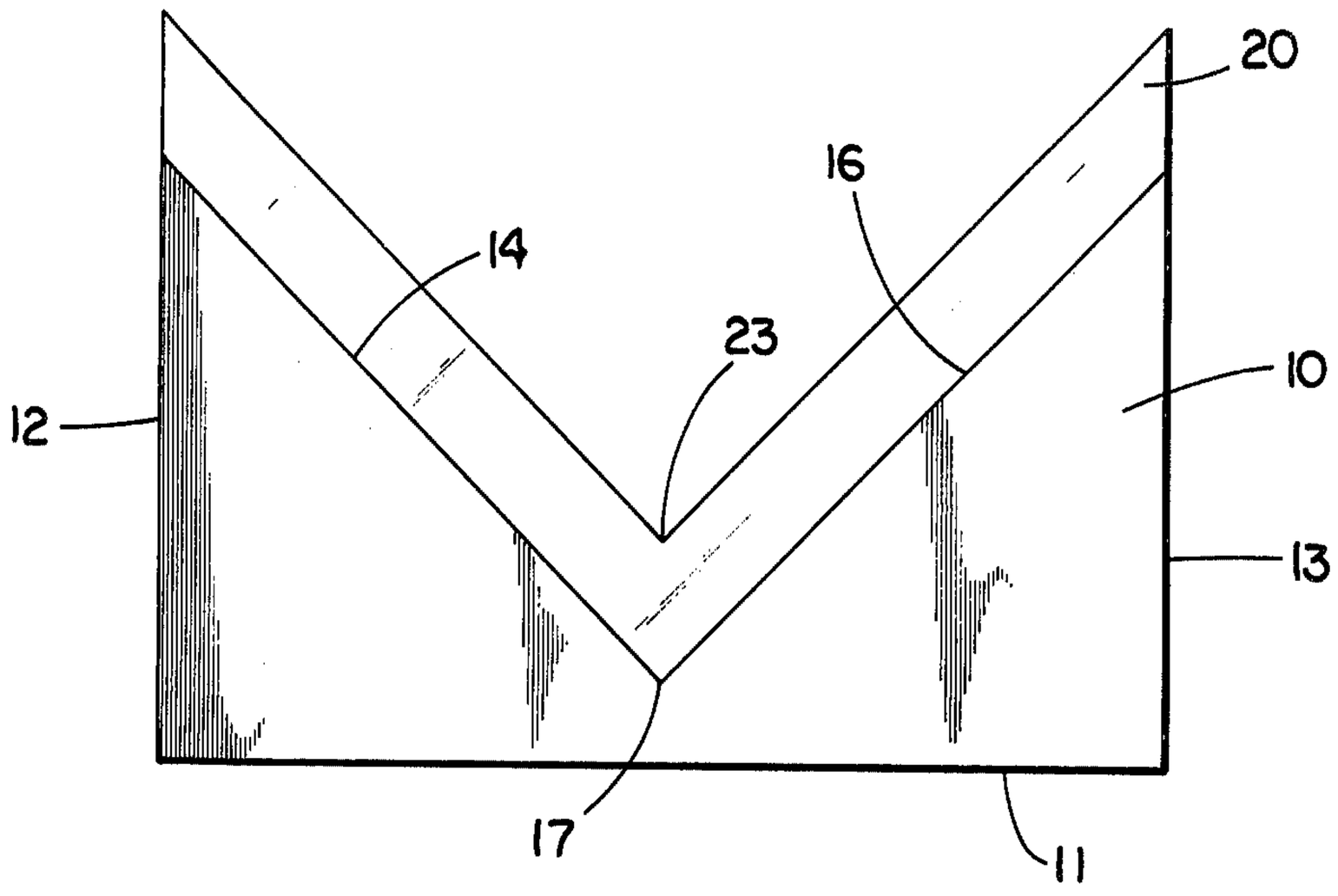


FIG. 1

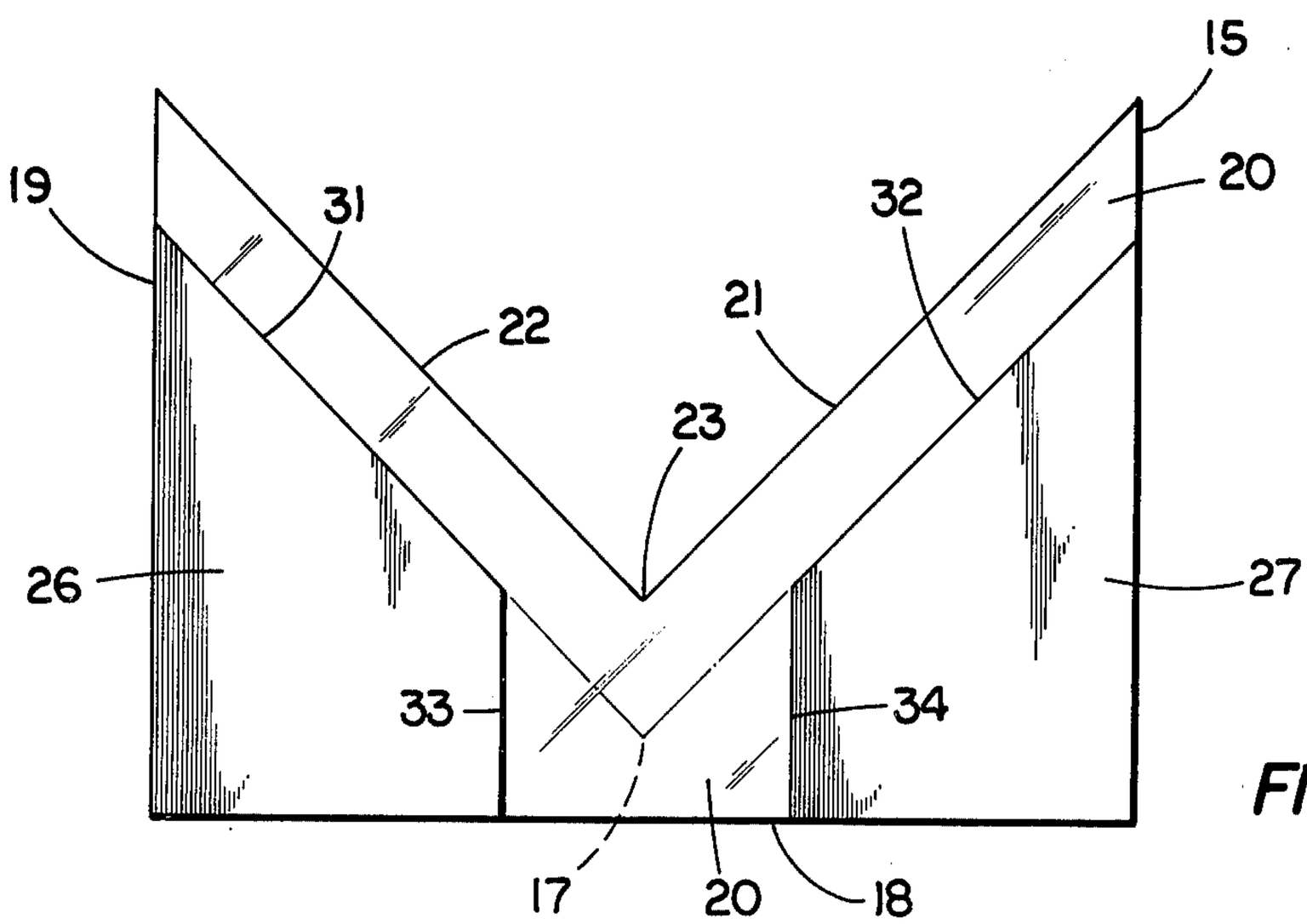


FIG. 2

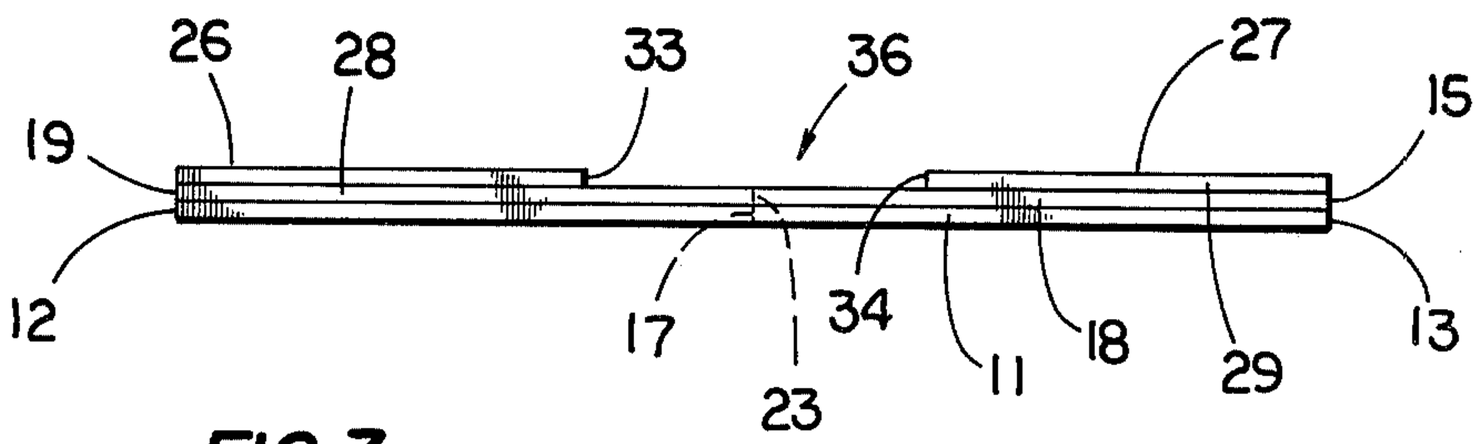


FIG. 3

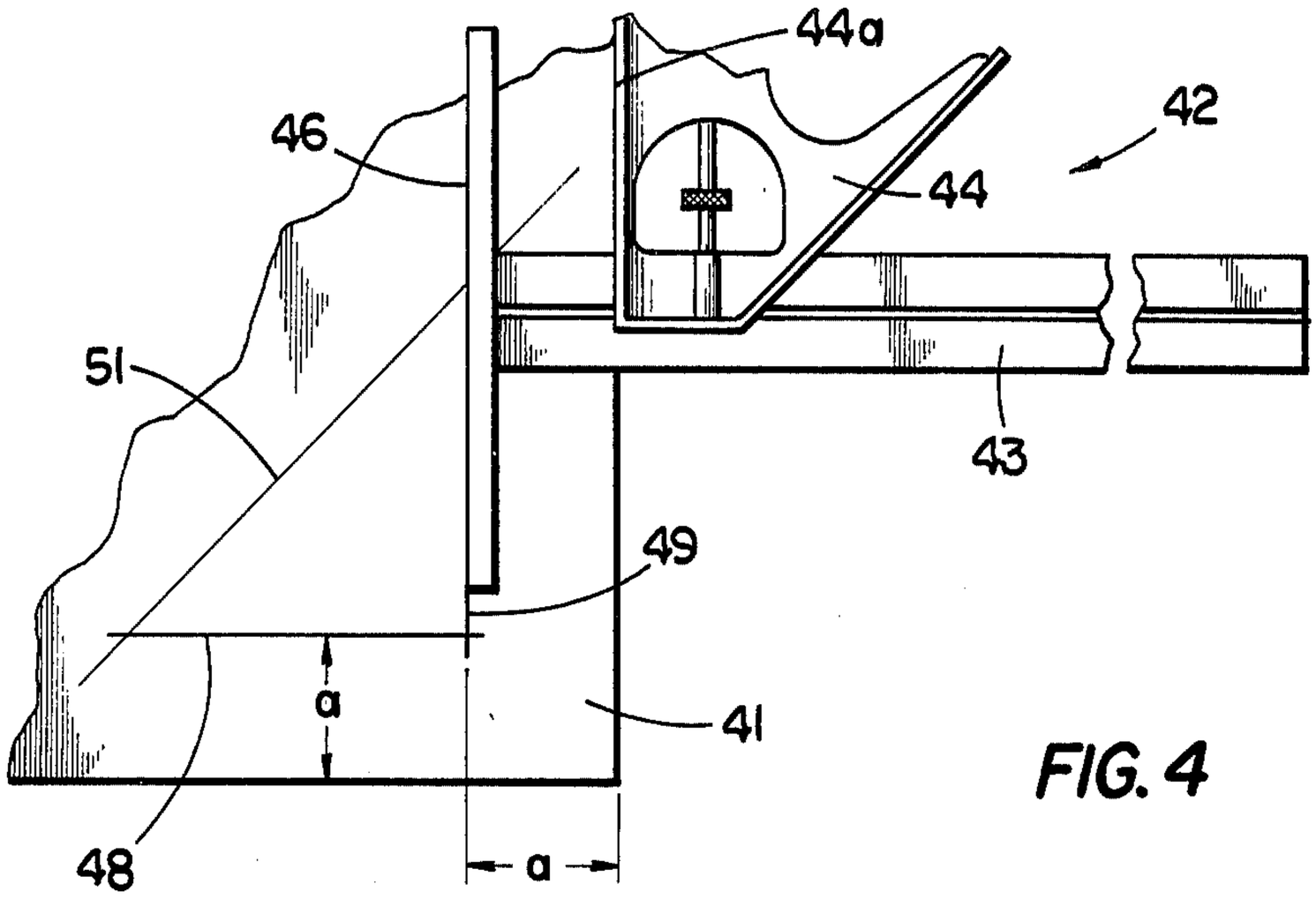


FIG. 4

FIG. 5

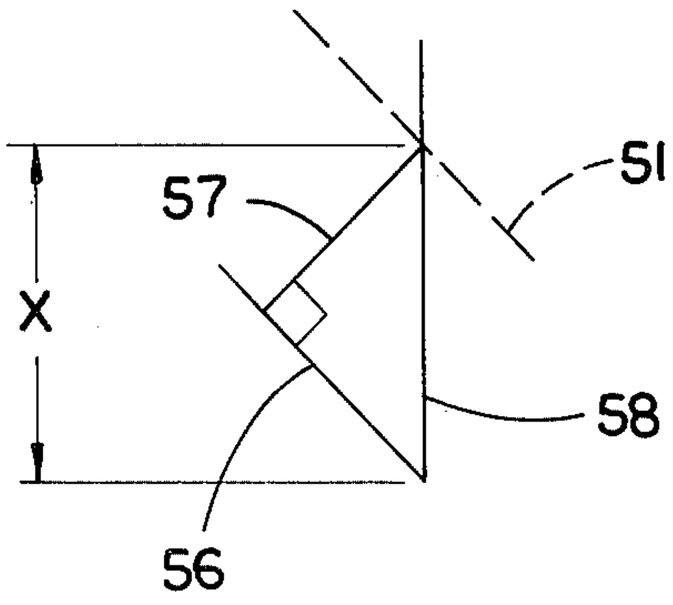


FIG. 6

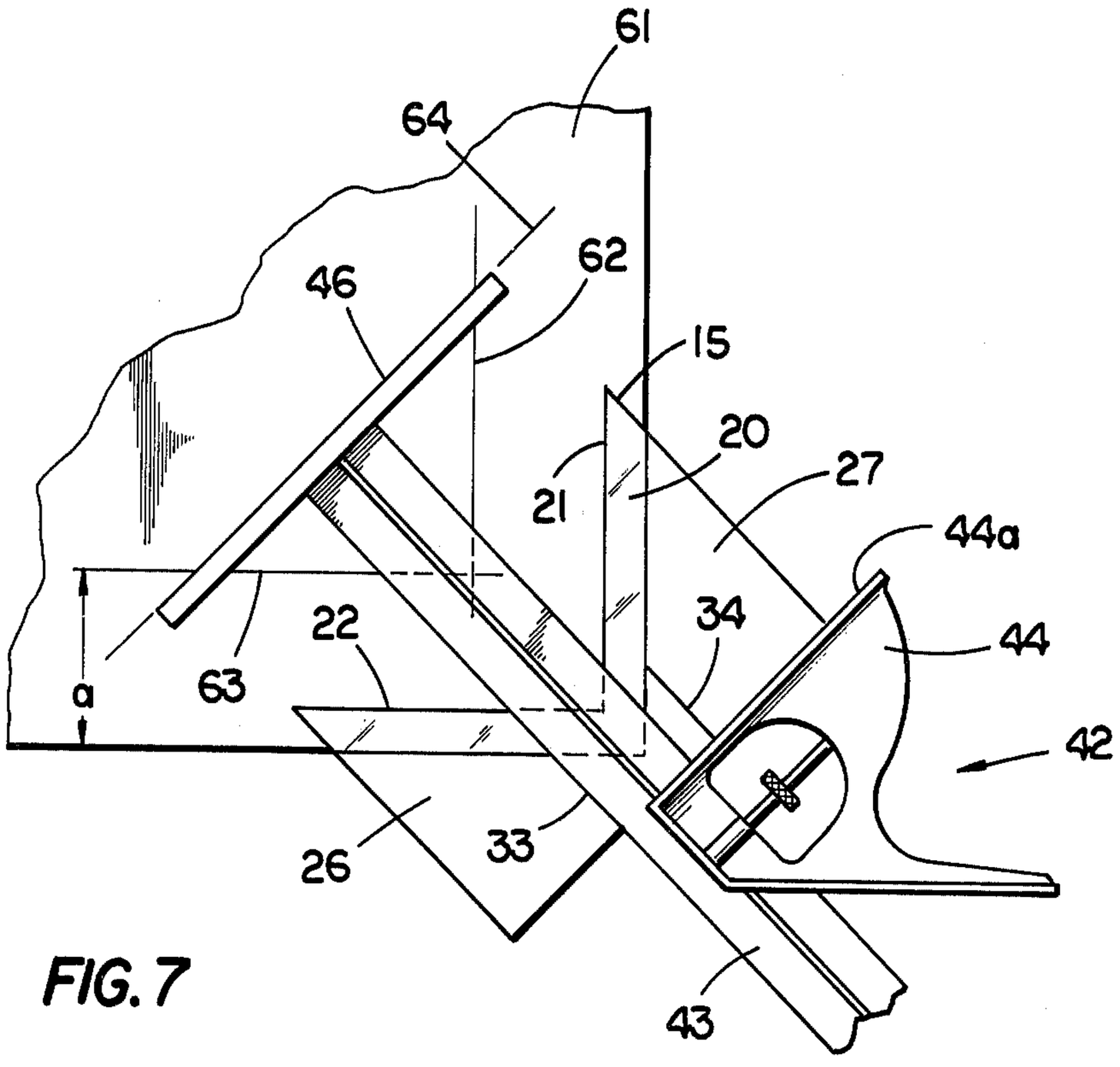


FIG. 7

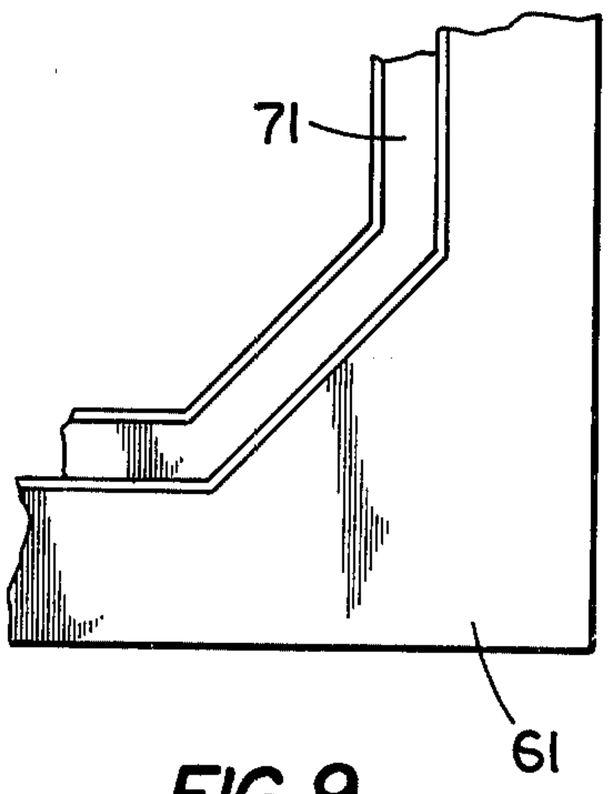


FIG. 9

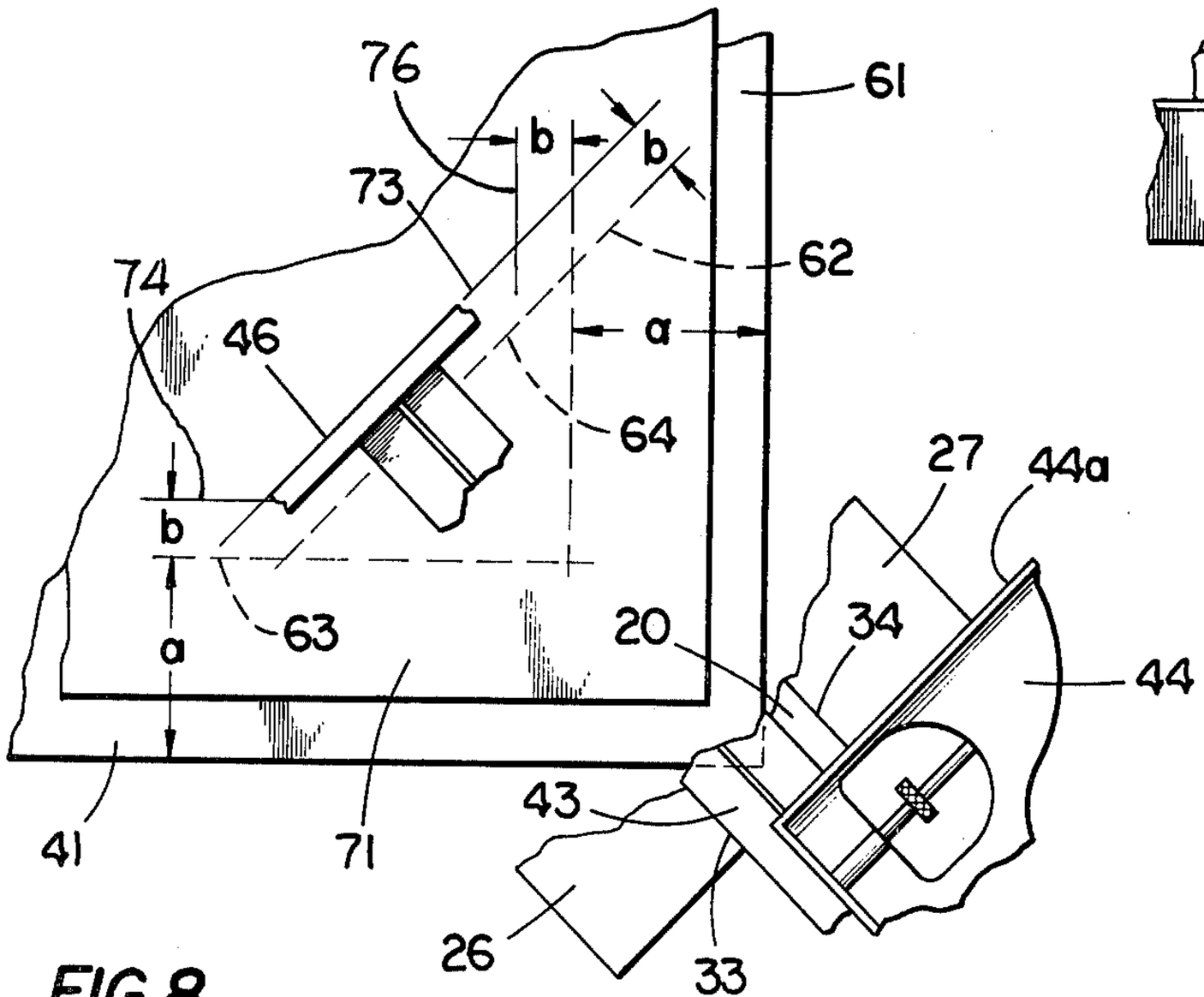


FIG. 8

PICTURE MAT MARKING INSTRUMENT

BACKGROUND OF THE INVENTION

The marking and subsequent cutting of mats of octagonal aperture design present difficulties. While four of the octagonal mat aperture sides are parallel to the outer rectangular margin of the mat, the other four sides of the octagonal aperture are each uniformly inclined at 45° with the adjacent outer margin of the mat. Particularly where a second inter liner or inner mat is used, having a somewhat smaller octagonal aperture whose sides are parallel to the octagonal aperture in the outer mat, marking and cutting difficulties arise. While linear measure can be used (with the outer margin of the outer mat as a reference) to locate the sides of the mat apertures (inner and outer) parallel to the outer mat margin, when the diagonal or 45° lines are marked, unless a mathematical calculation is made, a triangulation error is introduced (as will be subsequently explained in detail) which causes the width of the border between the inner and outer mat apertures to be narrower at the 45° lines. Loss of symmetry of appearance resulting from this difficulty can make the mat unacceptable. Either increased scrap loss or increased time and computational skill in marking had to be tolerated, heretofore, to avoid this problem.

The instrument of the present invention, used with a conventional framer's T-square, provides a means for transferring the 45° marking lines to the corner of a mat without applying a numerical value to the given border measurements of the mat and, further, avoids the triangulation error introduced when conventional measuring techniques are used in marking the inner one of dual mats.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. **1** is a bottom plan view of an instrument embodying the present invention.

FIG. **2** is a top plan view of the instrument.

FIG. **3** is an end view taken from the base end of the structure of FIGS. **1** and **2**.

FIG. **4** is a fragmentary, top plan view of a mat being marked in conventional fashion.

FIG. **5** is a fragmentary view similar to FIG. **4** but showing the inner mat overlying the outer mat and dimensioned to illustrate the triangulation error introduced in conventional marking of the inner mat.

FIG. **6** is an enlarged fragment from FIG. **5**.

FIG. **7** is a fragmentary, top plan view of a dual mat undergoing marking while using the instrument of the present invention.

FIG. **8** is a fragmentary, top plan view illustrating the marking of dual mats using the structure of the present invention and a conventional framer's T-square.

FIG. **9** is a fragmentary top plan view of a completed, dual mat having matching, octagonal mat apertures.

DESCRIPTION OF THE PREFERRED EMBODIMENTS

For the purposes of promoting an understanding of the principles of the invention, reference will now be made to the embodiments illustrated in the drawings and specific language will be used to describe the same. It will nevertheless be understood that no limitation of the scope of the invention is thereby intended, such alterations and further modifications in the illustrated device, and such further applications of the principles of the invention as illustrated therein being contemplated as would normally occur to one skilled in the art to which the invention relates.

The instrument embodying the present invention is described with reference to FIGS. **1–3** and includes a base plate **10** having a rectilinear base margin **11** and side margins **12** and **13**. The end margin opposite margin **11** is formed to provide a right angle indentation whose intersecting sides **14** and **16** form the right angle indentation. The apex **17** of the right angle is located at the center line of the plate **10** and is spaced from the base margin **11**.

The mid-plate **20** overlies and is rigidly adhered to the base plate **10**. The mid-plate has a rectilinear base or end margin **18**, which is coincident with the margin **11** of plate **10**, and has side margins **15** and **19** (FIG **3**). The end margin of plate **20** opposite margin **18** is formed to provide a right angle indentation whose intersecting sides forming the right angle are identified at **21** and **22**. The apex **23** of the right angle is spaced from apex **17** of plate **10** and although base margin **18** coincides with margin **11** of the plate **10**, the margins **21** and **22**, meeting at **23**, are parallel to but spaced longitudinally from margins **14** and **16** of plate **17** so as to overhang the idented margin (formed by lines **14** and **16**) of the base plate **10**.

Fixedly mounted on the upper face of plate **20** are two quadrilateral top plates **26** and **27**. Their base margins **28** and **29**, respectively, are coincident with base margins **18** and **11** of plates **10** and **20** and the outer side margins of plates **26** and **27** are also coincident with the side margins of the underlying mid-plate and base plate. The inclined end margins **31** and **32** (FIG. **2**) are parallel to and directly overlie the margin lines **14** and **16** of base plate **10** and are parallel to but spaced from the margin lines **21** and **22** of plate **20**. The top plates are laterally truncated so that their margins **33** and **34** provide a channel **36** (FIG. **3**) over the mid-plate **20** for freely accommodating the shank of a conventional, framer's T-square, as will subsequently be explained with reference to FIGS. **6** and **7**.

Referring to FIGS. **4**, **5** and **6**, conventional marking of a rectangular piece of mat stock **41** for an octagonal aperture proceeds using a conventional framer's T-square indicated generally at **42** in FIG. **4**. The T-square consists of a metal shank **43** inscribed with suitable scale markings and carries an adjustably positionable crosshead or base member **44** which by means of knurled nut **44***a*, can be clamped on the shank at any selected location. A cross-bar **46** is rigidly secured at right angles to the shank **43**. It will be understood that the framer's T-square, itself, while used with the instrument of the present invention described with reference to FIGS. **1–3**, forms no part of the present invention.

As indicated in FIG. **4**, in conventionally marking the initial or base mat **41**, the border dimension a is choosen which is the result of an artistic judgment based on a balancing of the frame width, type of picture to be exposed through the mat aperture, etc. Border lines **48** and **49**, parallel to the mat outer margin are then marked at all four corners of the mat **41** using the framer's square **42** as indicated in FIG. **4**. Measuring along both lines **48** and **49** from their junction at each corner and marking a uniform selected length provides the guide for drawing the 45° line **51** (FIG. **4**) at each corner. This marking indicates the octagonal aperture which is then cut from the mat by utilizing a conventional mat cutter (not shown), the cut usually being a bevel cut. After

cutting the octagonal aperture, the central removed piece must be fitted back into the aperture in preparation for marking and cutting the inner mat to be explained with reference to FIGS. **5** and **6**. Primarily because of the duplicate length measuring and marking, with a rule, along the border-parallel lines (**48** and **49**) at each corner to establish the 45° lines 51, the octagonal removed portion, after cutting the mat **41**, is usually out-of-true sufficiently to permit its fitting into the octagonal aperture in only one orientation, that corresponding to its position before the mat was cut. In this conventional marking and cutting procedure, the operator must thus use additional production time to correctly orient and refit the removed portion back into the aperture.

The triangulation error, previously referred to, occurs in the marking of the inner mat to be stacked on the mat **41**, this conventional inner mat marking procedure being illustrated in FIG. **5**. FIG. **5** shows the rear face of outer mat **41** and the rear face of overlying inner mat **52**. The lines **48** and **49** and 45° line **51** on the outer mat are, in this view, shown as broken lines because they are hidden by the overlying inner mat **52**. The dimension x (again, an artistic judgment and representing the width of the border that will appear between the octagonal inner margins of the inner and outer mats when mounting and framing of the picture is completed) having been chosen, the framer's square **42** may be utilized (after advancing the member **44** an amount equal to x on the shank or scale **43**) to draw the lines **53** and **54** at each corner parallel to the outer margin of the outer mat **41**, these lines being a distance a+x from the outer mat margin. In conventional practice, to mark the 45° lines **56** on the inner mat corners, the distance x, the border width, is measured along line **54** beyond the intersection of the trace of line **51** and line **54**. The same is done along line **53** and the points thereby defined are joined forming 45° lines **56** which is thus parallel to line **51** on the outer mat, the added increments, x in length, being identified at **58** and **59** in FIG. **5**. The line identified at **57** in FIGS. **5** and **6** defines the border width at each 45° corner. As will be evident from FIG. **6**, however, the length of line **57** is equal, not to x, but to x (cos 45°) or 0.707(x), a dimension appreciably and visibly smaller than x, except where x is very small. In the finished product the border between the mat margins at the 45° or diagonal corners is thus smaller in width than the border along the horizontal and vertical margins of the mat apertures. To assure that the length of line **57** is equal to x, the desired length, the operator would have to divide dimension x by 0.707 and add this length, somewhat more than x, to line **57** to form line increment **58**. This calculation takes time and increases the opportunity for mathematical error.

This triangulation error and a more true marking for octagonally apertured mats can be accomplished by use of the instrument of the present invention as will now be described with reference to FIGS. **7–9**. The vertical and horizontal mat lines **62** and **63** are first inscribed at each mat corner and, for purposes of illustration, they are again located a distance a from the outer border of the mat. This operation is accomplished using the T-square **42** alone, just as lines **48** and **49** were located in the conventional procedure of FIG. **4**.

For drawing the 45° lines **64** at each corner, the instrument of the present invention is placed against a corner of the rectangular mat stock **61** with the underface of mid-plate **20** overlying the mat and inclined margins **14** and **16** of base plate **10** abutting the outer, corner margins of the mat **41**. The base surface **44***a* (FIG. **7**) of the T-square member **44** is placed against the rectilinear base margin of the instrument and the shank **43** of the T-square is extended through channel **36** (FIG. **3**) and held in abutting engagement with the top block margin **33**. The cross member **46** of the T-square is located at the chosen location for the 45° line **64** and, after tightening member **44** on the shank **43**, line **64** is drawn along the outer margin of member **46**. Without changing the setting or location of member **44** or shank **43**, the 45° lines **64** at the other three corners of outer mat **61** are marked. Since the 45° lines **64** are drawn without measurement along the horizontal and vertical aperture border lines **62** and **63**, the octangonal block subsequently cut from the mat **61** to form the mat aperture is true and can be replaced in the aperture without regard to end-to-end orientation with the aperture thereby saving operator time as compared to the procedure described with reference to FIG. **5**.

Assuming an inner and outer mat are to be utilized, as shown in FIG. **8**, an inner mat **71** is placed over the underface of outer mat **61**. The border width b having been chosen, the member **44** is loosened on the shank **43** and the shank is advanced in the member **44** an amount equal to b and the member **44** reclamped on the shank. The outer margin of cross member **46** will thus be advanced a distance equal to b and inner mat 45° line **73** may be drawn. The procedure is repeated at the other three corners of inner mat **71**. After the four 45° lines at each corner of the inner mat have been drawn, the T-square **42** alone may then be utilized to draw the inner mat lines **74** and **76** a distance a+b from the margins of the outer mat **61**.

The octagonal aperture in the inner mat is then cut (with the outer mat in place under it) by conventional cutting appratus (not shown) and the resulting product as shown in FIG. **9** has a uniform border area width even at the 45° corner lines and this is accomplished using the instrument of the present invention in conjunction with the conventional framer's T-square without requiring any calculations, as are required with the conventional procedure described with reference to FIGS. **5** and **6**.

In the preferred form of the instrument the base plate, mid-plate and top plates forming the instrument of the present invention are preferably formed of glossy acrylic plastic, mid-plate **18** being transparent and base plate and top plates **26** and **27** being opaque.

While the invention has been illustrated and described in detail in the drawings and foregoing description, the same is to be considered as illustrative and not restrictive in character, it being understood that only the preferred embodiments have been shown and described and that all changes and modifications that come within the spirit of the invention are desired to be protected.

What is claimed is:

1. An instrument for accurately marking picture mat for subsequent cutting comprising a member formed by a base plate having a rectilinear base margin and formed to provide a marginal right-angle identation into the plate for receiving the right angle corner of an unmarked mat, the apex of the marginal right-angle intersecting the longitudinal center line of the plate and spaced from the base margin thereof, a mid-plate having a base margin coinciding with the base margin of the base plate with its opposite end margin also formed to

provide a right-angle indentation parallel to but spaced longitudinally of the indentation formed in the base plate so as to overhang the idented margin of the base plate, and two quardrilateral top plates overlying said mid-plate oriented so that their margins are coincident with those of said base plate and with their inclined end margins paralleling said right angle indentation in the mid-plate, said top plates being laterally truncated to provide a channel over said mid-plate for accommodating the shank of a T-square.

2. An instrument as claimed in claim 1 in which said base plate is formed of opaque acrylic material and at least the portion of said mid-plate which overhangs the base plate is formed of transparent acrylic material.

3. An instrument as claimed in claim 1 in which the side margins of said base and mid-plate and the outer side margins of said top plates are all rectilinear and coincident.

* * * * *